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(54) Title: METHOD FOR REDUCING THE SPREAD OF COMPUTER VIRUSES IN AN ELECTRONIC MAIL NETWORK

(57) Abstract: The invention relates to a method for reducing the spread of computer viruses in an electronic mail network. In a mail server having a multiplicity of connected email subscriber computers, a method is installed which is used to test emails sent in succession to the subscribers or sent in succession by the subscribers for particular commonalities, and, depending on commonalities established, either to forward the emails automatically as intended or to retain them until another criterion arises.

Method for reducing the spread of computer viruses in an electronic mail network

The invention relates to a method for reducing the spread
5   of computer viruses in an electronic mail network.

Prior art

In today's age of electronic mails and world-wide
10 networking of computers, many forms of so-called computer
viruses constitute great danger for companies operating
their networked computers with connections to the
electronic outside world as well. At the points of
connection to the electronic outside world, such as the
15 Internet, special computers are operated as so-called
firewalls which, amongst other things, attempt to filter
out emails containing electronic viruses externally
before they can reach the companies' own computers. A
virus is recognized by special software which, in each
20 case, needs to be kept at the level of the latest virus
patterns by the manufacturer.

However, between the appearance of a new virus and the
creation and spread of a new virus pattern, a certain
25 time elapses in which the virus can cause considerable
damage. The method of virus recognition in the firewall
computer is thus fundamentally susceptible. This is
because, to produce a virus pattern, it is first
necessary to recognize a virus, which is usually already
30 connected to an instance of damage. If a virus is sent by
the originator and is widely introduced into company
networks at the same time, then damage limitation becomes
a race against the time between the spread of the virus
and the creation and installation of recognition
35 programs. Particular structures mean that the virus can
cause considerable damage within a few hours, which are
required to create a recognition pattern, by causing the
affected computers to send copies of itself to all the

email addresses stored in this computer in snowball fashion, for example.

Invention

The aim of this invention is to limit or interrupt the snowball-like forwarding chain of the virus.

The invention is achieved by means of the features specified in Claim 1.

Advantageous developments can be found in the dependent claims.

According to the invention, in a mail server having a multiplicity of connected email subscriber computers, a method is installed which is used to test emails sent in succession to the subscribers or sent in succession by the subscribers for particular commonalities, and, depending on commonalities established, either to forward the emails automatically as intended or to retain them until another criterion arises.

The criterion which can be selected for the commonality established is the occurrence of the same subject line in a plurality of emails, the occurrence of the same text content, of an attachment which is the same, and/or the same or similarly timed sending or reception time.

If an electronic mail is automatically retained on account of one or more of these criteria, the mail server can forward an email query to the sending email subscriber to determine whether he actually wants to send all emails provided with substantial commonalities, and this sending email subscriber responds to this with an explicit acknowledgement.

Preferably, the entry of an identifier or of a password
can be used as an "explicit acknowledgement" from the
sending email subscriber.

5   An alternative or a further, "different criterion" may be
an email query with the administrator of the network in
question to determine whether he actually wants all
emails provided with substantial commonalities to be
sent, and this administrator responds to this with an
10 explicit acknowledgement.

Preferably, such characterized electronic mails may also
be forwarded after a delay time has elapsed. The time
delay should then advantageously be large enough for it
15 to be possible to react to a virus warning externally, or
should fall into a prescribed time frame, for example
into the normal working time of the administrator.

Patent claims

1. Method for reducing the spread of computer viruses
    in an electronic mail network, having a mail server
    and a multiplicity of email subscriber computers
    connected thereto, by emails sent in succession to
    the subscribers or sent in succession by the
    subscribers, characterized in that the emails sent
    in succession to the subscribers or sent in
    succession by the subscribers are tested for
    particular commonalities and, depending on
    commonalities established, the electronic emails are
    either automatically forwarded as intended or are
    retained until another criterion arises.

2. Method according to Claim 1, characterized in that
    the criterion used for the commonality established
    is the occurrence of the same subject line in a
    plurality of emails, the occurrence of the same text
    content, of an attachment which is the same, and/or
    the same or similarly timed sending or reception
    time.

3. Method according to Claim 1, characterized in that,
    if an electronic mail is automatically retained on
    account of one or more of these criteria, the mail
    server forwards an email query to the sending email
    subscriber.

4. Method according to Claim 3, characterized in that
    these emails provided with substantial commonalities
    are sent by the mail server if the sending email
    subscriber acknowledges the email query by the email
    server with an explicit acknowledgement.

5. Method according to Claim 4, characterized in that
    the entry of an identifier or of a password is

preferably used as an "explicit acknowledgement" from the sending email subscriber.

6. Method according to Claim 1, characterized in that, as a further, different criterion, an email query is sent to the administrator of the network in question to determine whether he actually wants all emails provided with substantial commonalities to be sent, and this administrator responds to this with an explicit acknowledgement.

7. Method according to Claim 1, characterized in that such characterized electronic mails are forwarded after a delay time has elapsed.

8. Method according to Claim 7, characterized in that the time delay falls into a prescribed time frame, preferably into the normal working time of the administrator.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7   H04L12/58   G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7   G06F   H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 052 709 A (PAUL SUNIL) 18 April 2000 (2000-04-18) abstract column 1, line 52 -column 3, line 13	1-8
A	WO 97 39399 A (TREND MICRO INC; CHEN EVA (US)) 23 October 1997 (1997-10-23) page 4, line 29 -page 5, line 25	1-8
A	WO 99 67731 A (MICROSOFT CORP) 29 December 1999 (1999-12-29) page 10, line 28 -page 11, line 29	1-8

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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